

Remedial Investigation, Design, and Construction at Former MGP



Multi-phase remediation project reduced client liability, satisfied state requirements, and resulted in significant cost savings for the client.

Client

Confidential Electric & Gas Company

Location

New York, USA

Contract Value

USD 31.5MM

Years

2017—present

More Information

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Project Overview

AECOM is providing design-build services for a high profile former MGP site that includes: a fast-track Pre-Design Investigation (PDI); nationwide, state, and local permit procurements; creation of a Remedial Design (RD) Report; preparation of construction documents; and remediation. Phase I includes pre-construction including PDI, RD development, RD report and agency approval, and securing all required permits for construction. Phase II includes all activities associated with remedial construction as well as post-remedial documentation. The remedy includes:

- Landside excavation of approximately 6,500 tons of shallow soils and debris
- Installation of about 725 linear feet of barrier/bulkhead sheetpile wall to a maximum depth of 55 feet
- Removal of approximately 80,000 tons of sediments from 8 acres of the Hudson River through 55 feet of water and 13 feet below sediment surface
- Placement of approximately 80,000 tons of clean fill through 55 feet of water
- Placement of about 2 acre of stabilized reactive core mat cap over river slope and underwater utilities

Client Benefits

- AECOM was able to accelerate the schedule, saving the client over \$5 million
- In an effort to control costs for sediment transportation, disposal, amendment and water treatment activities, the team prioritized integrating cost-saving innovations in the design. The team proposed use of an on-site dewatering facility and an off-site sediment amendment facility, which increased the shipping rate, reduced transportation costs and reduced the number of dredge seasons, while minimizing disruption to the community.
- The team employed special water quality measures including use of a 60-foot deep containment cell during dredging and backfill operations to prevent escape of turbidity and nonaqueous phase liquid, which accelerated the construction schedule.

- Use of a disposal facility sediment precharacterization process allowed faster processing and disposal of sediments.
- The team expertly negotiated with multiple regulatory agencies, gaining approval despite conflicting objectives.
- AECOM's adaptability and flexibility in design accommodated regulatory and community changes including modification to barrier/bulkhead wall and river slope cap without significant changes to budget or schedule.
- The lean and agile design team included the remedial contractor, resulting in a cost-efficient design and a coordinated one-team response (client, engineer, and contractor with faster turnaround on project changes and constructability reviews of design changes).

Work Performed

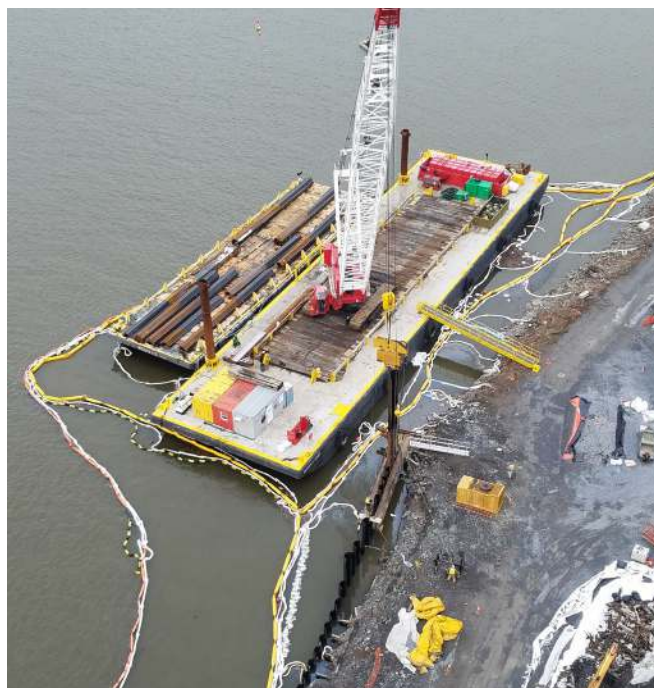
To date, AECOM and its remedial contractor, has performed the following services:

- Pre-design investigations including bathymetric survey, sidescan sonar survey, advancing geotechnical borings on land and in river, test pit and soil boring investigations, disposal facility sediment precharacterization (collection of over 220 sediment samples), diver inspections of underwater utilities, and treatability studies.
- 90% fast-track design including 3D model, constructability reviews and design modifications per regulatory requirements.
- Submission of nationwide permit applications and negotiations that includes assessment and mitigation for construction within the Kingston Poughkeepsie Significant Coastal Fish and Wildlife Habitats for deep water sturgeon and performing Essential Fish Habitat Study and Biological Assessment including collection of 36 benthic invertebrate samples.
- State permit applications, presentations, and negotiations.
- Construction community response including fact sheets and construction impact statements.

Technical Highlights and Challenges

The project site is high profile and includes an elevated, well-visited park above the site and upcoming high-end development adjacent. Besides the technical challenges of dredging and work in water, the following challenges are present that is addressed through innovative and agile design and implementation:

- **LIMITED SITE SPACE.** Installation of the proposed barrier/bulkhead wall via barge to negate limited site area and allow emergency services access to an elevator servicing elevated park over site.



- **UNDERWATER UTILITIES IN WORK AREA.** Thorough investigation of active underwater gas, electric, and fiber optic utilities present within dredge area. The utility areas will be capped and includes a loading design and fill placement prior to start of capping activities.
- **STRUCTURALLY UNSTABLE RIVER SLOPE.** Thorough analysis of long term stability, erosion of existing river slope, structural stability analysis and design of alternate river slope, and design of environmental cap (with RCM) over new river slope.
- **WATER THICKNESS.** Special construction consideration for conducting dredge/backfill operations, cap placement activities through 60 feet of water and to depths of 13 feet below sediment surface.
- **SEQUENCING.** Construction sequencing to accommodate stringent fish window and allow for construction of each remedial element without comprising remedy or cost.
- **FISH HABITAT.** Construction within federally endangered species habitat and resulting water quality measures including innovative containment cell that extends to bottom of river to prevent turbidity and NAPL plumes.
- **REGULATORY NEGOTIATIONS.** Multiple negotiations with regulatory and permitting agencies with competing objectives and adaptable design open to regulatory modifications within the parameters set by the client.
- **COMMUNITY EXPOSURE.** The site is present community and site controls including containment cell dredging and backfill, off-site sediment amendment, and remote monitoring.